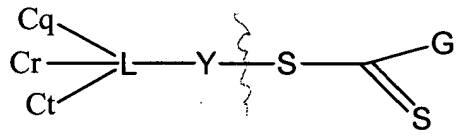
This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-16 were previously cancelled.

17. (Currently Amended) A method of preparing a sensor for detecting a biological molecule in an aqueous sample, the method comprising:

bonding an iniferter initiator to a substrate surface at one or more points to form a derivatized surface, said iniferter initiator comprising an initiator-control agent adduct having the formula:

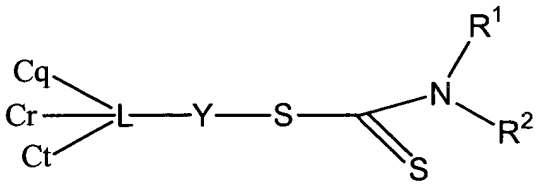


wherein C is a moiety on the surface of the substrate; L is a linker group capable of bonding to at least one C moiety; q, r and t are independently 0 or 1, provided the sum of q + r + t is at least 1; Y is a residue capable of initiating free radical polymerization upon UV initiated cleavage of the Y-S bond; S is sulfur; and, G is a nitrogen or an oxygen heteroatom;

contacting said derivatized surface with a composition comprising a water-soluble or water-dispersible free radically polymerizable monomer mixture, the mixture containing an acrylamide-based monomer and at least 1 other monomer, under reaction conditions to form bound polymer chains comprising a water-dispersible segment having a weight average molecular weight of at least about 1000 grams per mole, wherein (i) at least one of said monomers has ~~and~~ one or more functionalized sites thereon, ~~the functionalized site(s) being formed in its(their) active state~~ for reaction with a probe selective for the biological molecule, and (ii) at least one of said monomers does not have a functionalized site for reaction with said probe; and

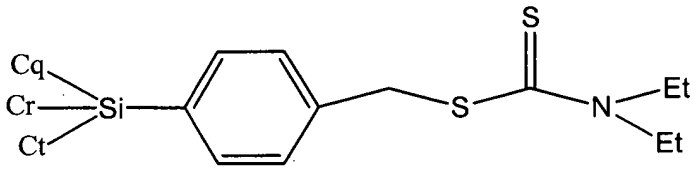
bonding the probe to the bound polymer chains through the ~~active~~ functionalized sites.

18. (Original) The method according to claim 17 wherein the bound iniferter initiator comprises an initiator-control agent adduct having the formula:



wherein N is nitrogen, and R^1 and R^2 are independently selected from hydrocarbyl and substituted hydrocarbyl.

19. (Previously Presented) The method according to claim 18 wherein said bound iniferter initiator comprises an initiator-control agent adduct having the formula:



wherein Et is ethyl.

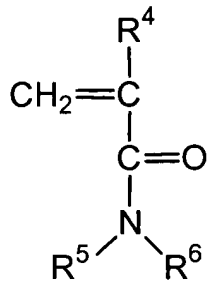
20. (Original) The method according to claim 19 wherein C is derived from a hydroxyl group.

21. (Original) The method according to claim 19 wherein q = 1, r = 1 and t = 0.

22. (Original) The method according to claim 19 wherein q = 1, r = 1 and t = 1.

23. (Original) The method according to claim 17 further comprising spacer molecules bound to said surface at one or more points different from the points at which said polymer chains are bound to space said polymer chains apart from each other, wherein the ratio of polymer chains to the sum of polymer chains and spacer molecules is about 0.75:1.

24. (Original) The method according to claim 17 wherein the acrylamide-based monomer has the formula:



wherein R^4 is H or an alkyl group, R^5 is methyl and R^6 is methyl.

25. (Original) The method according to claim 24 wherein the monomer is N,N-dimethylacrylamide.

26. (Previously Presented) The method according to claim 17 further comprising separating unbound polymer after said derivatized surface is contacted with a composition comprising the monomer mixture to form polymer chains.

27. (Previously Presented) The method according to claim 26 wherein the monomer mixture additionally contains an unbound iniferter initiator.

28. (Previously Presented) The sensor of one of preceding claims 17-27.

29. (New) The method according to claim 17 wherein the monomer mixture contains about 10% to about 90% of the monomer having said functionalized sites for reaction with said probe, based on the total mass of monomer in said mixture.

30. (New) The method according to claim 17 wherein the monomer mixture contains about 15% to about 50% of the monomer having said functionalized sites for reaction with said probe, based on the total mass of monomer in said mixture.

31. (New) The method according to claim 17 wherein the one or more functionalized sites on said monomer are in their active state for reaction with said probe.